OUTLINE SHEET 1-3-1
First Aid

A. Introduction

Shipboard engineers are always at risk of suffering from casualties due to human and machinery failure, environment and acts of war. The knowledge of first aid is essential lessening the impact of injuries.

B. Enabling Objectives

1.7 **STATE** the purpose and priorities of first aid.

1.8 **DESCRIBE** the general rules of first aid.

1.9 **STATE** the safety precautions used in heat and cold stress areas.

1.10 **DESCRIBE** the characteristics and treatment of injuries from heat and cold.

1.11 **DESCRIBE** the characteristics and treatment of burns.

1.12 **DESCRIBE** the procedures of rescuing a person in contact with an energized electrical circuit.

1.13 **DESCRIBE** the steps taken to minimize heat stress and burns.

C. Topic Outline

1. Introduction
2. Overview
3. Objectives of First Aid
4. General Rules of First Aid
5. Symptoms and Treatment of Injuries
5. Summary and Review
6. Assignment

ASSIGNMENT SHEET 1-3-2
First Aid

A. Introduction

This material is to be completed prior to the material being covered in class.

B. Enabling Objectives

Refer to enabling objectives in Outline Sheet 1-3-1.

C. Study Assignment

1. Read Information Sheet 1-3-3

D. Study Questions

1. What is the proper position for a person who is at risk of choking from his or her own vomit?
2. What is the difference between heat stroke and heat exhaustion?
3. What is the proper way of rescuing a person in contact with energized circuit?

INFORMATION SHEET 1-3-3
First Aid

A. Introduction

This information sheet contains general rules of first aid as well as symptoms and treatment of common shipboard injuries.

B. Reference

Hospital Corpsman 3 & 2 NAVEDTRA 10669-C
Basic Military Requirements NAVEDTRA 12043

C. Information

I. First aid is the emergency care given to a sick or injured person until competent medical care is available.
   A. The objectives of first aid are to:
      1. save life
      2. prevent further injury
      3. limit infection
   B. The primary tasks when administering first aid is to:
      1. maintain breathing
      2. stop bleeding
      3. prevent or reduce shock

II. The general rules of first aid apply practically to all situations.
   A. Keep the victim lying down, head level with the body until the type and seriousness of injury or illness has been determined.
   B. If the victim shows one of the following difficulties, follow the rule given for the specific problem:
      1. Vomiting, bleeding around the mouth, and semi-consciousness: If the victim is in risk of choking on blood, vomit or water, position him or her back with head lower than the feet and turned to one side.
      2. Shortness of breath: If the victim has chest injury or breathing difficulties, place the victim in a sitting or semi-sitting position.
      3. Shock: Place the victim on his or her back with the head slightly lower than the feet.
   C. Do not move the victim unless necessary. Cut or rip clothing along seams to facilitate determination of extent of injuries.
   D. Do not touch wounds and or burns except when sterile dressing is not available and it is necessary to stop bleeding.
   E. Do not give an unconscious person anything by mouth.

F. When transporting a person in a stretcher, carry the victim feet forward to allow the rear litter bearer to monitor the victim for respiratory obstruction or stoppage of breathing.
G. Keep the victim comfortable and warm enough to maintain body temperature.
H. Keep the victim reassured. The victim can endure more pain and discomfort if he or she is confident of your ability.

III. Shock is the collapse of the cardiovascular system.
A. It can be caused by the following:
1. loss of blood
2. loss of vascular control by the nervous system
3. inadequate functioning of the heart
4. severe infection
5. severe reaction to allergens
B. The symptoms of shock are:
1. vacant, lackluster eyes with dilated pupils
2. shallow, irregular breathing
3. pale, cold and moist skin
4. weak or absent pulse
C. Treatment - Encourage the flow of blood in the brain by keeping the victim lying down with feet and legs positioned higher than the head. Keep the victim warm by using dry covering, even on a hot day.

IV. There are instances where personnel may be exposed to extreme cold temperatures.
A. When the body is subjected to extreme cold temperatures, blood vessels constrict, and body heat is gradually lost.
B. Hypothermia is the general cooling of the body. Personnel exposed to low temperatures for extended period of time may suffer ill effects even if they were well protected with clothing.
1. The first symptom is shivering, which is an attempt of the body to generate heat through muscle contraction.
2. It is followed by listlessness, indifference and drowsiness.
3. Shock becomes evident as the victim's eyes assume a glassy stare, with the victim's respiration slow and is shallow with the pulse weak or absent.
4. Death may result when the core temperature of the body approaches 80 degrees Fahrenheit.
C. Treatment - The victim of hypothermia must be warmed as soon as possible. Soak the victim in a tub of warm water (100°F to 105°F). Rewarm the body trunk before the limbs to avoid shock.
1. Because the victim is not able to produce enough body heat, placement under a blanket or in a sleeping bag is not sufficient treatment. "Buddy warming" method is used when practical. Natural body heat from two rescuers is transferred skin to skin under a blanket.

D. Local cooling injuries affect parts of the body. The most commonly affected areas are the face, hands and feet.
   1. Chilblain is a mild non-freezing injury. It is characterized by redness, swelling, tingling, and pain to the affected area. It is caused by prolonged and repeated exposure to cold air, which may be as high as 60 degrees Fahrenheit.
      a) Treatment - Warm the affected area, keep dry and remove from further exposure.
   2. Immersion foot is a more serious non-freezing injury. It is characterized by swelling, bluish discoloration of the skin and blisters, which can lead to gangrene. It may also occur on hands. It is caused by prolonged exposure to wet, cold temperature. This injury may result even at temperatures as high as 50 degrees Fahrenheit.
      a) Treatment - Expose the affected area to warm air. Do not use salves, ointments, nor rupture the blisters.
   3. Frostbite is a freezing injury that occurs when ice crystals form in the skin or deeper tissues. Superficial frostbite is characterized by hardening of the skin but with the underlying tissues remaining soft. Deep frostbite reaches into the deeper layers.
      a) Treatment - Gradually rewarm superficial frostbite using warm water immersion, skin to skin contact, or hot bottles. Do not rub affected area.
      b) Deep frostbite is a serious injury. Do not thaw out affected area if there is a possibility of refreezing. Thawing out and refreezing will cause more injury.
      c) Rapidly thaw out frozen areas using warm water bath at 100 to 105 degrees Fahrenheit. Do not rub or press against the affected areas. Keep the affected area elevated.

V. Cold exposure injuries are preventable.
   A. Personnel must acclimatize to the cold conditions.
   B. Warm, layered clothing must be readily available.
   C. Drink enough water.
   D. Eat three meals a day.
   E. Stay away from the wind.
   F. Do not drink alcohol.

VI. Heat stress injuries are a threat when working in any hot environment. Fortunately, these injuries are preventable in most cases.
   A. Excessive sweating may result in painful cramps in the muscles of the abdomen, legs, and arms.
      1. Heat cramps are caused by the depletion of water and electrolytes from the body.

2. Although heat cramps may also be caused by drinking ice water right after heavy exertion, it is usually an early sign of heat exhaustion.

B. Heat exhaustion is the most common condition caused by working in a hot space.
   1. Heat exhaustion produces a serious disruption of blood flow to the brain, heart and lungs.
   2. The disruption of blood flow causes the victim to experience dizziness, weakness, headache, loss of appetite, and nausea.

C. The signs and symptoms of heat exhaustion are similar to those of shock.
   1. The victim will appear ashen and the skin will feel cold, moist, and clammy. Body temperature may be normal or below normal.
   2. The pulse may be weak and rapid and the breathing shallow. The pupils of the eyes are dilated.
   3. Treatment - Treat heat exhaustion just like shock. Move the victim to a cool area but do not allow him or her to become chilled.
      a) Apply cool, wet cloth to help the body cool down. If the victim is conscious, allow the victim to drink a solution of 1 teaspoon of salt mixed in a liter of cold water.

D. Heat stroke has a 20% mortality rate. Heat stroke victims suffer from the breakdown of the sweating mechanism and are unable to get rid of excess body heat. If the body temperature rises too high, the brain, kidneys and liver are going to be permanently damaged.
   1. A heat stroke victim will have a hot, dry skin.
   2. Breathing may be deep and rapid at first and later becomes shallow and almost absent. The pupils are constricted to almost a pin point.
   3. Treatment - Reduce the heat immediately by dousing the body with cold water or by applying cold wet towels to the whole body. Move the victim to the coolest possible place and remove as much clothing as possible.
   4. Place the victim on his or her back with the head and shoulders slightly elevated. Promote cooling with whatever practical means possible.

VII. Heat related injuries are preventable injuries.
   A. Heat stress conditions can occur in any space onboard the ship
   B. Primary causes of heat stress are:
      1. steam and water leaks
      2. missing or deteriorated thermal insulation
      3. ventilation system deficiencies
      4. weather conditions of high heat and humidity

C. When assigned to a heat stress area, you must:
   1. Eat three adequate well-balanced meals a day.
   2. Drink more water than that satisfies thirst.
   3. Sleep at least six continuous hours a day.
   4. Wear clothing that allows effective evaporation of sweat.

D. When assigned to a heat stress area, you must NOT:
   1. Take salt tablets.
   2. Drink commercially prepared supplements in place of water.
   3. Wear starched clothing.

VIII. Burns and scalds are essentially the same type of injury. Burns are caused by dry heat while scalds are from moist heat.

A. Burns are classified according to their depth.
   1. First degree burns are characterized by redness and tingling in the affected area.
   2. Second degree burns are characterized by blisters and mottling in the affected area. Affected areas may also "weep" (bodily fluids slowly oozing out).
   3. Third degree burns are full thickness injuries that penetrate into the muscle, connected tissues and even down to the bone. Pain may be absent from the actual burn site if all the area nerve endings are destroyed. Tissue color will range from white due to scalding or black due to charring.

B. When evaluating the seriousness of the burn, the extent of burnt area is more important than the depth of the burn.
   1. A first degree burn over 50% of the body may be more serious than a third degree burn over 3%.
   2. The location of the burn is of great importance. Serious burns on the head, hands, feet, and genitals will require hospitalization.

C. Treatment - First aid administered to burns should be kept to a minimum. Protect the area of the burn by covering it with clean sheets or dry dressing. Do not remove clothing adhering to the wound.

IX. Electrical burns may be far more serious than a preliminary examination may indicate. The entrance and exit wound may be small, but the electrical current may have burned a large area just below the surface.

A. Before first aid is administered, ensure the victim is no longer in contact with a live electrical source. Shut off the power or use a non-conducting rope or stick to separate the victim from the electrical source.

B. Treatment of electrical burn is the same as a thermal burn.

X. When acids, alkalis, and other chemicals come in contact with the skin, they may cause injuries commonly referred to as chemical burns. These burns are not caused by heat but by the direct chemical destruction of the body tissues.

A. Treatment - Quickly flush the affected area with large amounts of water
B. Acid burns to the eye must be flushed with large amounts of water or sterile saline solution for 5 to 10 minutes. Alkali burns must be flushed for at least 20 minutes. It may be necessary to hold the eyelids apart if the victim is unable to open his or her eyes.